

Removing the Fine Print: Standardization, Disclosure, and Consumer Loan Outcomes

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Motivation

There is a tension in financial regulation: we want consumers to be informed about their purchases. However, this can lead to pages of fine print. To combat this, there are two (among many) types of financial regulations:

- ▶ **Disclosure** to make terms more salient.
- ▶ **Standardization** of contract features.

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There is a tension in financial regulation: we want consumers to be informed about their purchases. However, this can lead to pages of fine print. To combat this, there are two (among many) types of financial regulations:

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- ▶ **Standardization** of contract features.

Questions:

- ▶ Which regulations lead to better outcomes for consumers?
- ▶ Are the effects the same across all consumers?

Loan Contract

rate: x%

insurance: x%, fees: \$x

Standardized Loan Contract

_____ rate: x% _____

Disclosure Contract

Interest rate: xx%

APR: xx%

Fees: \$XXX

Total Cost: \$XXX

Findings - Main Effects

Exploit a natural experiment in Chile to examine impact of standardization and disclosure on consumer loan outcomes.

1. What are the effects of standardization/disclosure on defaults and delinquencies?
 - ▶ Regression discontinuity on implementation cutoffs.
 - ▶ Consumers are 40% less likely to be delinquent on their loans and 1 percentage point (94%) less likely to default with more transparent disclosure. Standardization has no effect.

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 - ▶ Regression discontinuity on implementation cutoffs.
 - ▶ Consumers are 40% less likely to be delinquent on their loans and 1 percentage point (94%) less likely to default with more transparent disclosure. Standardization has no effect.
2. Are the effects heterogeneous across borrowers?
 - ▶ Difference-in-differences with differentially educated borrowers.
 - ▶ Standardization: less educated borrowers miss fewer payments. Disclosure: more educated borrowers miss fewer payments.

Consumption Loans

- ▶ Fixed loan amount, rate, maturity
- ▶ Unsecured
- ▶ From banks
- ▶ 15% of households use
- ▶ Average amount: \$3,400 USD

Consumer credit is mostly used to purchase items for houses, clothes, retire other debts, or for vehicles.

Chile vs. US

Other Credit Options

Data

- ▶ Administrative consumer loan data from the Superintendencia de Bancos e Instituciones Financieras (SBIF).
- ▶ Sample of 6,331,545 approved consumer credit loans from Jan 1, 2009 to Dec 31, 2014 (~ 95% of the population of consumer bank loans).
- ▶ Variables: Loan amount, interest rate, lender, income, credit score, geographic location, age, married, default.

Data

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- ▶ Variables: Loan amount, interest rate, lender, income, credit score, geographic location, age, married, default.
- ▶ The average size of the loan is about \$4,000 for two years with an average nominal rate of 25%.
- ▶ 1/4 of borrowers are delinquent in the full sample (1/5 in the RD sample), and 1% default.

Policy Changes

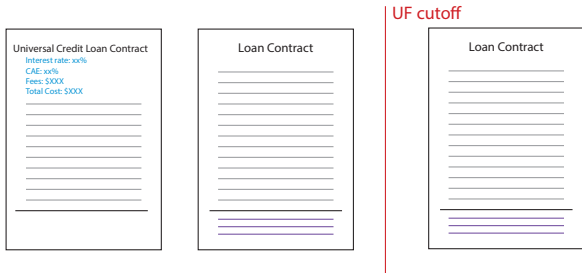
Pre-period

Loan Contract

rate: x%

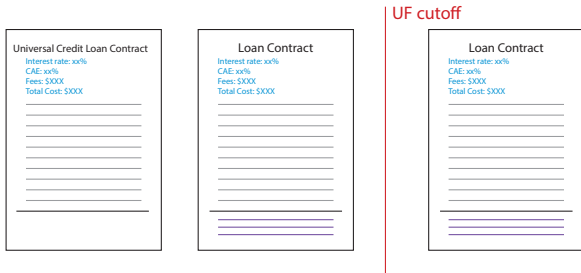
insurance: x%, fees: \$x

1. Standardization and Disclosure



- ▶ Universal credit option for any loan contract below 1,000 UF (40,000 USD) and < 3 years maturity.
- ▶ Universal credits:
 - ▶ Provided easily located information on total rate with fees (APR), fees, total value of loan, etc.
 - ▶ Removed all superfluous insurance (e.g. disability).
- ▶ Implemented October 24, 2011.

2. Disclosure

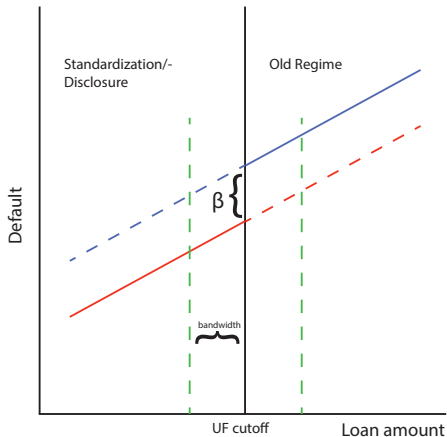


- ▶ Disclosure sheet for *all* loans.
- ▶ Universal credits still an option for loan contracts below 1,000 UF
- ▶ Implemented July 31, 2012.

Example

Results

Regression Discontinuity



Assumptions:

1. Agents don't manipulate their loan size to be above or below the cutoff
2. Agents are not selecting on other variables either side of the cutoff

Bandwidth selection

- ▶ Trade off between number of observations and bias
- ▶ Chosen by MSE-optimal bandwidth selection

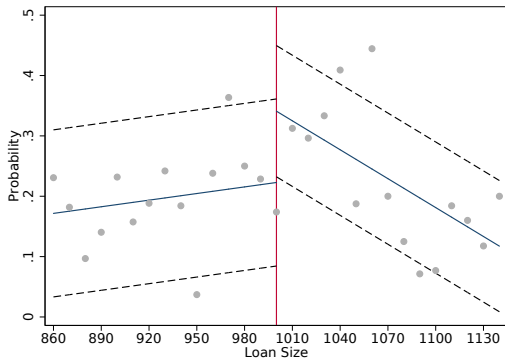
Regression Discontinuity

$$y_i = \beta_1 \text{Loansize}_i + \beta_2 \mathbb{1}_{\{\text{Loansize}_i < 1000\}} \\ + \beta_3 \mathbb{1}_{\{\text{Loansize}_{it} < 1000\}} \text{Loansize}_i + \gamma_1 X_i + \epsilon_i$$

- ▶ y_i : ever delinquent, default, or extends their loan
- ▶ β_1, β_3 : slope coefficient before and after cutoff
- ▶ X_i : individual borrower controls on age, credit risk, income, marital status; interest rate and maturity at issue, lender and neighbourhood fixed effects, and interbank rate and expected UF inflation rate at issuance.
- ▶ β_2 : coefficient of interest

Raw Regression Discontinuity

Figure: Ever Delinquent



Default

Extended

Regression

No Slope

Regression Discontinuity

	(1) Ever Delinquent	(2) Ever Defaulted	(3) Ever Extended
Transparency	-0.144** (0.0711)	-0.0161** (0.00809)	0.00413 (0.0311)
Loan Size	-0.148** (0.0623)	-0.00604 (0.00796)	-0.000818 (0.0328)
Transparency X Loan Size	0.163* (0.0861)	-0.00175 (0.00943)	0.0189 (0.0389)
Comuna Fixed Effects	Y	Y	Y
Lender Fixed Effects	Y	Y	Y
Controls	Y	Y	Y
Bandwidth	138	153	131
Kernel	Tri	Tri	Tri
Mean	.341	.017	.034
N	1088	1183	1033

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Regression Discontinuity - Disclosure Period

	(1)	(2)	(3)
	Ever Delinquent	Ever Defaulted	Ever Extended
Transparency	-0.0272 (0.0201)	-0.00364 (0.00356)	0.00143 (0.0102)
Loan Size	0.0256 (0.0234)	0.00141 (0.00520)	0.0122 (0.0115)
Transparency X Loan Size	-0.0593* (0.0309)	-0.00573 (0.00606)	-0.0222 (0.0141)
Comuna Fixed Effects	Y	Y	Y
Lender Fixed Effects	Y	Y	Y
Bandwidth	138	153	131
Kernel	Tri	Tri	Tri
Mean	.081	.002	.015
N	4241	4680	4007

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

RD Assumption 1: No Manipulation of Loan Amount

Important for the identification of our regression discontinuity.

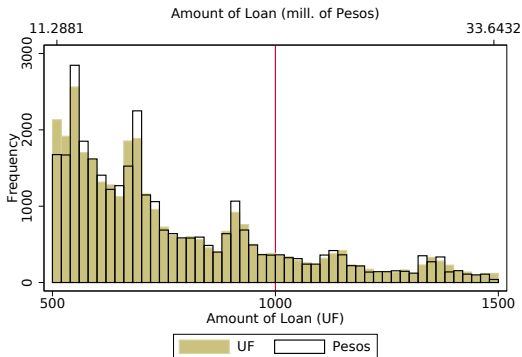
Currency:

- ▶ Transactions (and loans) are conducted in pesos.
- ▶ The regulation applies in UF (Unidad de Fomento), which is an inflation-adjusted currency.

Exchange rates:

- ▶ $1 \text{ UF} = 26,669 \text{ pesos} = \43 USD
- ▶ $\$1 \text{ USD} = 627 \text{ pesos}$

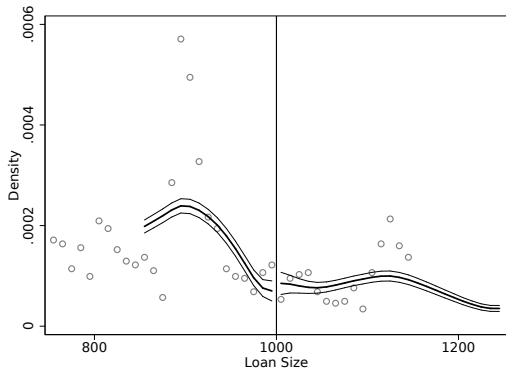
RD Assumption 1: No Manipulation of Loan Amount



- ▶ Use fluctuation in peso to UF rate.
- ▶ Loan contracts in pesos, regulation in UF.
- ▶ Suggests consumers targeted peso and not UF amounts.

RD Assumption 1: No Manipulation of Loan Amount

McCrary Density Test: Pre period Disclosure



- ▶ Discontinuity estimate: 0.22 (0.22)
- ▶ Passes McCrary density test, suggesting consumers and/or lenders did not manipulate loan amounts around the 1000 UF cutoff.

RD Assumption 2: Covariates Balanced

	(1)	(2)	(3)	(4)	(5)	(6)
	Interest Rate	Maturity	Credit Risk	Income	Age	Expected Inflation
Transparency	-0.759 (0.508)	-1.292 (1.228)	0.000430 (0.0311)	-326.2 (241.5)	-3.096 (2.143)	0.368* (0.217)
Loan Size	-0.367 (0.464)	-1.586 (1.195)	0.0769** (0.0310)	1.744 (232.7)	0.661 (1.789)	-0.195 (0.206)
Transparency X Loan Size	-0.264 (0.618)	2.289 (1.526)	-0.141*** (0.0400)	-623.8* (342.1)	-4.004 (2.513)	0.469* (0.262)
Comuna Fixed Effects	Y	Y	Y	Y	Y	Y
Lender Fixed Effects	Y	Y	Y	Y	Y	Y
Bandwidth	138	138	138	138	138	138
Kernel	Tri	Tri	Tri	Tri	Tri	Tri
Mean	13	19	0	1337	47	2
N	1,088	1,088	1,088	1,088	1,088	1,088

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Difference-in-Differences

- ▶ RD says that borrowers are 40% less delinquent with more transparency and standardization doesn't have an effect.
- ▶ However, RD results are local for loans around \$40,000 USD. These borrowers are usually more sophisticated than the median borrower.
- ▶ What about for consumers that the regulation aimed to target?

Difference-in-Differences

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- ▶ However, RD results are local for loans around \$40,000 USD. These borrowers are usually more sophisticated than the median borrower.
- ▶ What about for consumers that the regulation aimed to target?
- ▶ Separate borrowers by level of education to proxy for sophistication.

Difference-in-differences

$$y_i = \sum_{t(i)=-7}^{14} [\alpha_{\tau-t(i)} + \beta_{\tau-t(i)} \times \mathbb{1}_{\{LHS_i|MHS_i\}}] + \gamma X_i + \epsilon_i$$

- ▶ y_i is an indicator for ever delinquent.
- ▶ $\beta_{\tau-t(i)}$ s are unsophisticated or sophisticated borrower.
- ▶ τ is November 2011.
- ▶ Determining education: Average years of education completed by comuna ("neighbourhood").
 - ▶ ≥ 12 years: More than high school (MHS_i)
 - ▶ ≥ 11.5 , < 12 years: control
 - ▶ < 11.5 years: Less than high school (LHS_i)
- ▶ Controls: married, age, female, expected inflation, base rate, comuna.

Loan Contract

Law 20.448 - Standardization and Disclosure

Universal Credit Loan Contract

Interest rate: xx%

CAE: xx%

Fees: \$XXX

Monthly Cost: \$XXX

Loan Contract

UF cutoff

Loan Contract

Law 20.555 - Disclosure

Universal Credit Loan Contract

Interest rate: xx%

CAE: xx%

Fees: \$XXX

Monthly Cost: \$XXX

Loan Contract

Interest rate: xx%

CAE: xx%

Fees: \$XXX

Monthly Cost: \$XXX

UF cutoff

Loan Contract

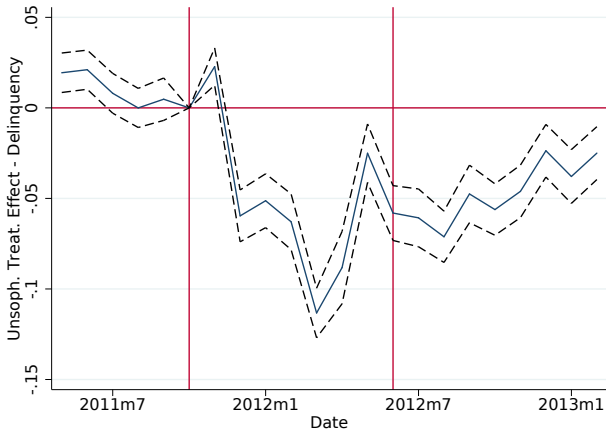
Interest rate: xx%

CAE: xx%

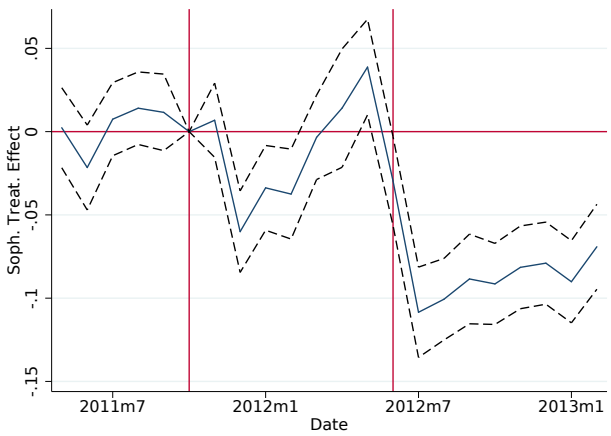
Fees: \$XXX

Monthly Cost: \$XXX

Ever Delinquent - Less than HS



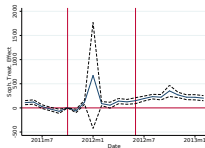
Ever Delinquent - More than HS



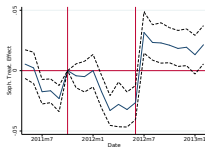
Quality of Borrowers

More than High School

▶ Income improves

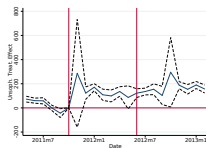


▶ Credit Risk declines

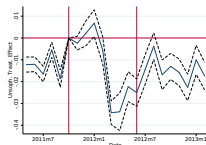


Less than High School

▶ Income improves



▶ Credit Risk improves



Conclusion

Exploit a natural experiment in Chile to examine impact of standardization and disclosure on consumer loan outcomes.

- ▶ Borrowers around the regression discontinuity cutoff were delinquent 14 percentage points (40%) less often and defaulted 1 percentage point less often with improved disclosure.
- ▶ Standardizing contracts improved default rates for less-educated borrowers with higher costs of studying.
- ▶ Regulatory policy should depend on which borrowers you intend to target.

Thank you!

Example of Universal Mortgage Credit Contract

CRÉDITO HIPOTECARIO - SIMULACIÓN

Fecha : 24 de Octubre de 2011
UF : \$ 22.079,1

Antecedentes del Crédito Hipotecario

	Valores en UF	Valores en \$	Producto	MUTUO UNIVERSAL
Valor Propiedad	5.000,00	110.395.500	Objetivo Préstamo	VIVIENDA
Monto Solicitado	3.000,00	66.237.300	Destino	COMPRA CASA
Pago contado	2.000,00	44.158.200	Antigüedad	NUEVA
Porc. Financiamiento	60,00%		Meses de gracia	---

Cálculo de dividendo

Plazo (Años)	Tasa Anual %	Crédito hipotecario				Dividendo Total UF	Dividendo Total \$	Renta Mínima \$
		Dividendo sin seguro UF	Sin seguro de Incendio UF	Seguro Desgravamen UF	Dividendo Total UF			
20	4,80	19,30	0,00	9,84	20,14	444.673	1.770.992	

Gastos Operacionales

	Valores en UF	Valores en \$
Tasacion	2,50	55.197
Legales	5,00	110.395
Notaria	3,00	66.237
Impuesto de Timbres y Estampillas	18,00	397.423
Conservador Bienes Raíces	19,00	419.502
Total Gastos Operacionales	47,50	1.048.757

Seguros Involucrados

Seguro Desgravamen 1 Asegurado

CAE (**):	5.03%
Gasto Final de Crédito (***):	4.687,98

(**) Carga Anual Equivalente (CAE) indicador que, expresado en forma de porcentaje, revela el costo de un crédito en un periodo anual, cualquiera que sea el plazo pactado para el pago de la obligación. Contempla el tipo de interés, todos los gastos asociados al crédito, el plazo de la operación, y se calcula sobre base anual.

(***) Costo Final de Crédito es un indicador que, expresado en una suma de dinero, da cuenta del monto total a pagar por el crédito solicitado, sumado lo adeudado por tasa de interés y los gastos asociados al crédito.

Example of Disclosure Regulation

SUMMARY CONSUMER CREDIT QUOTE SHEET OR CONTRACT		SERNAC SEAL (if applicable)
		CAE: XX%
Name	--	
Date	--	
Period of quote validity	--	
I. Principal Product		
Disbursement amount (pesos)	--	
Credit term (months)	--	
Value of quote (pesos)	--	
Total cost of credit (pesos)	--	
Annual Equivalent Rate	XX%	
II. Expenses or Charges for the Credit		
<i>Expenses or Charges</i>		
Taxes	--	
Notarial charges	--	
Gross credit amount	--	
Associated guarantees	Sí/No - ¿Tipo de garantía?	
Expenses or Charges for Voluntary Services		
Value: Reference fee	--	
Insurance		
Monthly cost (pesos)	--	
Total cost (pesos)	--	
Coverage	xxx	
Associated service provider name	xxx	
Insurance		
Monthly cost (pesos)	--	
Total cost (pesos)	--	
Coverage	xxx	
Associated service provider name	xxx	
III. Prepayment Conditions		
Prepaid charge (%)	--	
Notice period for prepayments	--	
IV. Late Fees		
Interest on arrears (%)	--	
Collection expenses (%)	--	
Advisory		
The consumer credit of this summary sheet requires the contracting consumer <name> equity or future income sufficient to pay the total cost of \$xx whose monthly payment is \$xx, during the entire credit period.		

Support for Continuity Assumption

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Interest Rate	Mat.	C. Risk	Income	Age	Exp. Infl.	Bank Rate	UF/peso
Trans.	-0.759 (0.508)	-1.292 (1.228)	0.000430 (0.0311)	-326.2 (241.5)	-3.096 (2.143)	0.368* (0.217)	-0.0718 (0.0811)	-15.81 (28.10)
Loan Size	-0.367 (0.464)	-1.586 (1.195)	0.0769** (0.0310)	1.744 (232.7)	0.661 (1.789)	-0.195 (0.206)	0.0675 (0.0748)	34.49 (28.02)
Trans. X L. S.	-0.264 (0.618)	2.289 (1.526)	-0.141*** (0.0400)	-623.8* (342.1)	-4.004 (2.513)	0.469* (0.262)	-0.174* (0.0924)	-81.26** (35.95)
Comuna FE	Y	Y	Y	Y	Y	Y	Y	Y
Lender FE	Y	Y	Y	Y	Y	Y	Y	Y
Bandwidth	138	138	138	138	138	138	138	138
Kernel	Tri	Tri	Tri	Tri	Tri	Tri	Tri	Tri
Mean	12.61	19	.12	1,336	47	2.05	5.79	22,396
N	1,088	1,088	1,088	1,088	1,088	1,088	1,088	1,088

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

[Back](#)
[Pre period](#)
[Disclosure period](#)
[Pictures](#)

Support for Continuity Assumption - Pre period

	(1)	(2)	(3)	(4)	(5)	(6)
	Interest Rate	Maturity	Credit Risk	Income	Age	Expected Inflation
Transparency	-0.241 (0.242)	0.298 (0.669)	-0.0249** (0.0106)	-154.3 (207.8)	1.880* (1.042)	-0.657*** (0.162)
Loan Size	-0.178 (0.337)	-0.604 (0.910)	0.00346 (0.0161)	-272.1 (289.7)	-0.313 (1.455)	-0.121 (0.227)
Trans. X L. Size	-0.525 (0.401)	3.260*** (1.096)	-0.0660*** (0.0197)	277.2 (422.9)	1.999 (1.723)	-1.121*** (0.269)
Comuna FE	Y	Y	Y	Y	Y	Y
Lender FE	Y	Y	Y	Y	Y	Y
Bandwidth	138	138	138	138	138	138
Kernel	Tri	Tri	Tri	Tri	Tri	Tri
Mean	10.918	18.794	.062	1737.598	47.826	1.582
N	3283	3283	3283	3283	3283	3283

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Support for Continuity Assumption - Disclosure period

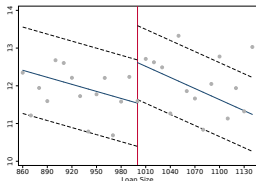
	(1)	(2)	(3)	(4)	(5)	(6)
	Interest Rate	Maturity	Credit Risk	Income	Age	Expected Inflation
Transparency	0.371** (0.170)	0.453 (0.581)	0.00957 (0.0143)	-260.7 (201.8)	-1.437* (0.774)	-0.00524 (0.0778)
Loan Size	0.638*** (0.177)	0.0826 (0.575)	-0.00598 (0.0148)	-607.0*** (179.4)	0.0969 (0.760)	-0.323*** (0.0805)
Trans. X L. Size	-1.384*** (0.223)	-0.156 (0.767)	0.00469 (0.0195)	830.9*** (284.5)	-1.076 (1.025)	0.540*** (0.104)
Comuna FE	Y	Y	Y	Y	Y	Y
Lender FE	Y	Y	Y	Y	Y	Y
Bandwidth	138	138	138	138	138	138
Kernel	Tri	Tri	Tri	Tri	Tri	Tri
Mean	10.72	17.965	.174	2471.958	48.847	2.694
N	4241	4241	4241	4241	4241	4241

Standard errors in parentheses

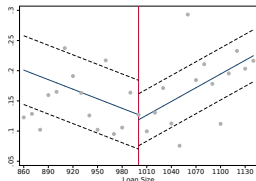
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

RD Covariates plots

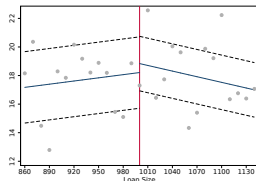
Interest Rate



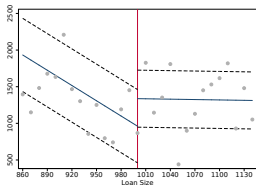
Credit Risk



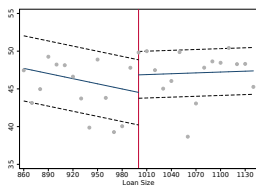
Maturity



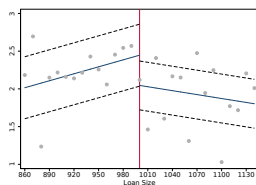
Income



Age



Expected Inflation



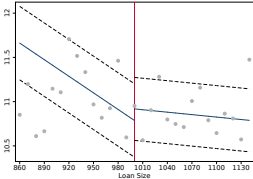
Back

Pre period

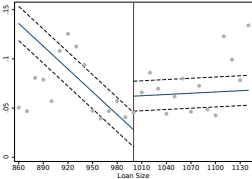
Disclosure period

RD Covariates plots - Pre period

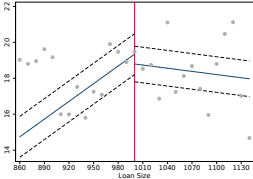
Interest Rate



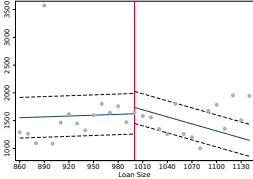
Credit Risk



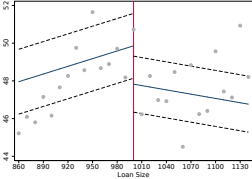
Maturity



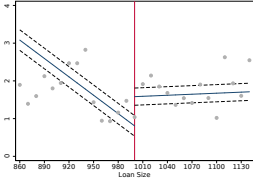
Income



Age



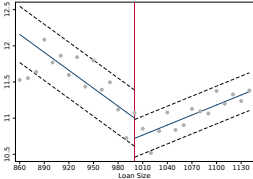
Expected Inflation



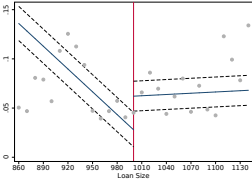
Back

RD Covariates plots - Disclosure period

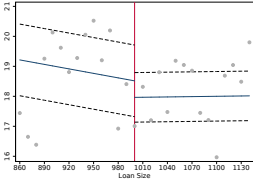
Interest Rate



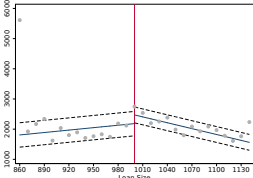
Credit Risk



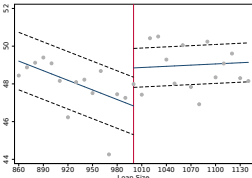
Maturity



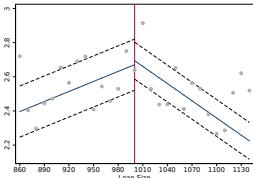
Income



Age



Expected Inflation



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Estimation Caveat

MEASURING INTRO OF NEW PRODUCT AND
STANDARDIZATION, NOT JUST STANDARDIZATION.

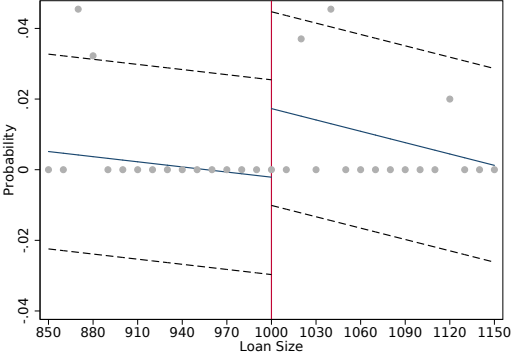
TWO OPTIONS:

- ▶ Think through the literature/find it
- ▶ Try to find new product introduction by lenders in the pre period
- ▶ Try to identify UC contracts.

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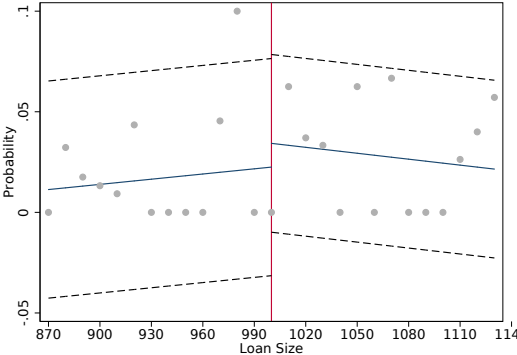
Raw RD

Figure: Ever Default



Raw RD

Figure: Ever Extended



Regression Discontinuity

Raw data

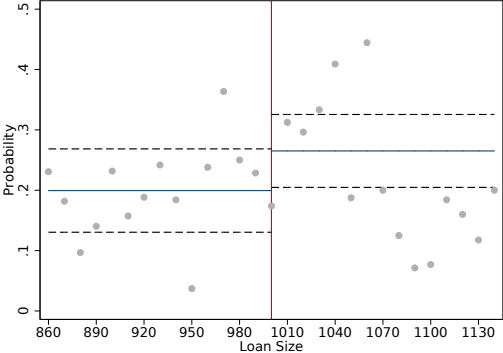
	(1)	(2)	(3)
	Ever Defaulted	Ever Delinquent	Ever Extended
Transparency	-0.118* (0.0706)	-0.0194 (0.0141)	-0.0118 (0.0275)
Loan Size	-0.160** (0.0662)	-0.0107 (0.0141)	-0.00983 (0.0307)
Transparency X Loan Size	0.196** (0.0841)	0.00587 (0.0145)	0.0184 (0.0360)
Comuna Fixed Effects	N	N	N
Lender Fixed Effects	N	N	N
Bandwidth	138	153	131
Kernel	Tri	Tri	Tri
Mean	.341	.017	.034
N	1088	1183	1033

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Raw RD - No Slope

Figure: Ever Default



Regression Discontinuity - Pre-period

	(1)	(2)	(3)
	Ever Defaulted	Ever Delinquent	Ever Extended
Transparency	-0.0328 (0.0321)	0.00220 (0.00207)	0.00847 (0.0160)
Loan Size	0.0150 (0.0468)	-0.000449 (0.000766)	0.0102 (0.0260)
Transparency X Loan Size	-0.0715 (0.0547)	0.00343 (0.00446)	0.0113 (0.0316)
Comuna Fixed Effects	Y	Y	Y
Lender Fixed Effects	Y	Y	Y
Controls	Y	Y	Y
Bandwidth	138	153	131
Kernel	Tri	Tri	Tri
Mean	.103	0	.018
N	1997	2113	1920

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Bandwidth Sensitivity

Figure: Ever Delinquent

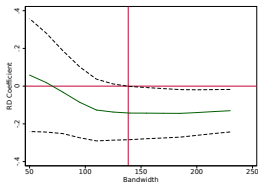


Figure: Ever Extended

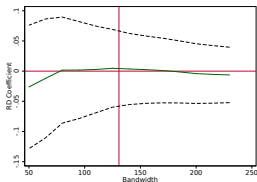
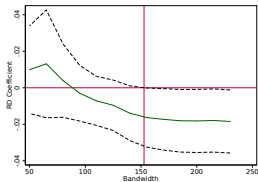


Figure: Ever Default



Loan Amount Density - Pre period

Figure: Histogram

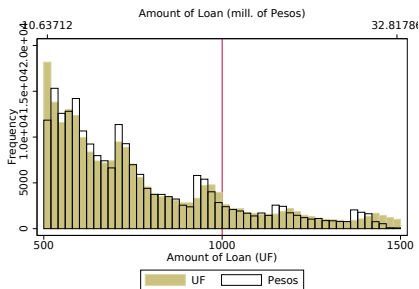
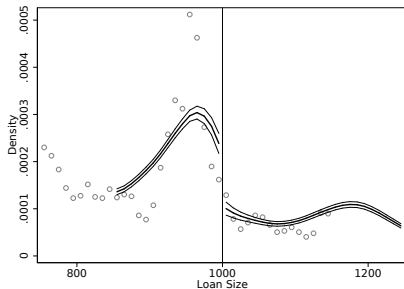


Figure: McCrary Density



Rounding at a peso amount close to the cutoff could explain why the pre period loan amount distribution does not pass the McCrary density test. [Back](#)

Loan Amount Density - Disclosure

Figure: Histogram

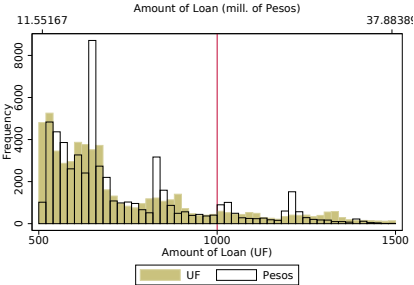
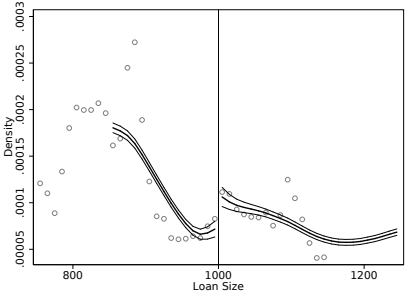


Figure: McCrary Density



Rounding at a peso amount close to the cutoff could explain why the disclosure period loan amount distribution does not pass the McCrary density test. [Back](#)

Regression Discontinuity

Added controls for leverage, outstanding debt, and number of loans.

	(1)	(2)	(3)
	Ever Defaulted	Ever Delinquent	Ever Extended
Transparency	-0.169** (0.0768)	-0.0203** (0.0103)	-0.0000357 (0.0318)
Loan Size	-0.173*** (0.0595)	-0.00991 (0.00948)	-0.0118 (0.0234)
Transparency X Loan Size	0.159* (0.0859)	0.00435 (0.0121)	0.0290 (0.0296)
Comuna Fixed Effects	Y	Y	Y
Lender Fixed Effects	Y	Y	Y
Bandwidth	150	174	201
Kernel	Tri	Tri	Tri
Mean	.298	.024	.048
N	957	1,045	1,157

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Regression Discontinuity - Other Outcomes

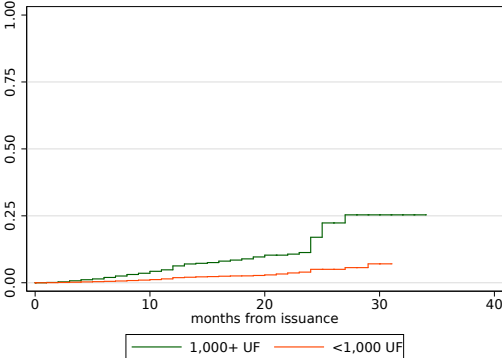
	(1)	(2)	(3)	(4)
	Month Default	# Miss. Pmnts	\$ Miss. Pmnts	Future debt
Transparency	0.419 (4.584)	-0.413** (0.196)	-31.70** (15.61)	284.0 (212.1)
Loan Size	2.907 (9.208)	-0.335** (0.153)	-25.77 (17.70)	356.2 (245.2)
Trans. X Loan Size	-1.162 (10.17)	0.294 (0.191)	24.73 (20.06)	-289.6 (316.3)
Comuna FE	Y	Y	Y	Y
Lender FE	Y	Y	Y	Y
Bandwidth	87	187	132	127
Kernel	Tri	Tri	Tri	Tri
Mean	7.141	.795	55.365	652.741
N	110	1369	1038	1005

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Hazard Model

Figure: Ever Delinquent



Regression Discontinuity - No Slope

	(1)	(2)	(3)
	Ever Defaulted	Ever Delinquent	Ever Extended
Transparency	-0.0802** (0.0342)	-0.00714 (0.00512)	-0.00691 (0.0153)
Comuna Fixed Effects	Y	Y	Y
Lender Fixed Effects	Y	Y	Y
Controls	Y	Y	Y
Bandwidth	138	153	131
Kernel	Tri	Tri	Tri
Mean	.265	.011	.03
N	1,088	1,183	1,033

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Placebo Cutoffs

Figure: Ever Delinquent

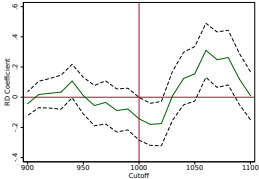


Figure: Ever Default

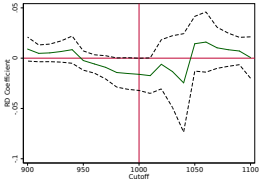
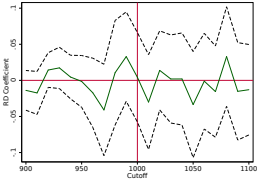


Figure: Ever Extended



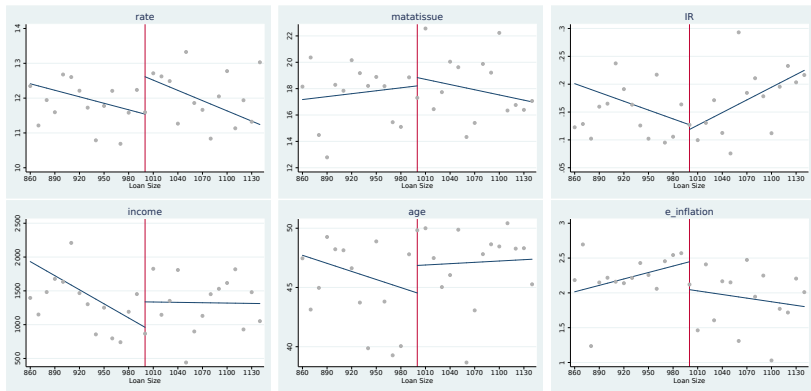
2. Covariate Balancing

	(1)	(2)	(3)	(4)	(5)	(6)
	Interest Rate	Maturity	Credit Risk	Income	Age	Expected Inflation
Transparency	-0.759 (0.508)	-1.292 (1.228)	0.000430 (0.0311)	-326.2 (241.5)	-3.096 (2.143)	0.368* (0.217)
Loan Size	-0.367 (0.464)	-1.586 (1.195)	0.0769** (0.0310)	1.744 (232.7)	0.661 (1.789)	-0.195 (0.206)
Transparency X Loan Size	-0.264 (0.618)	2.289 (1.526)	-0.141*** (0.0400)	-623.8* (342.1)	-4.004 (2.513)	0.469* (0.262)
Comuna Fixed Effects	Y	Y	Y	Y	Y	Y
Lender Fixed Effects	Y	Y	Y	Y	Y	Y
Bandwidth	138	138	138	138	138	138
Kernel	Tri	Tri	Tri	Tri	Tri	Tri
Mean	13	19	0	1337	47	2
N	1,088	1,088	1,088	1,088	1,088	1,088

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

2. Covariate Balancing



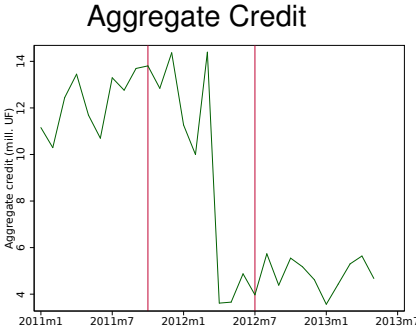
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Number of Observations by Education Category

Sophistication	Frequency	Delinquency Rate
≥ 12 years school	43,495	18.8%
> 11.5 to < 12 years school	338,876	26.6%
≤ 11.5 years school	356,946	25.3%
Total	739,317	

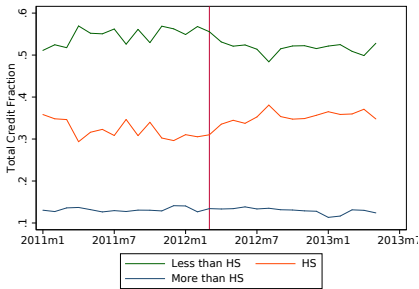
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Credit Registry Deletion - March 2012



- ▶ March 2012 Credit Registry Deletion
- ▶ detailed in Liberman (2018)
- ▶ mostly affected non-bank loans
- ▶ “holiday”: defaults prior to Dec 2011 removed

Total Credit Fraction



- ▶ Concern: selection of better borrowers explains default rather than response to regulation.
- ▶ Less than HS: looks like credit rationing, bias coefficients downwards, but we expected a zero result.
- ▶ More than HS: Credit risk suggests these borrowers got worse, so improved default should be result of regulations.